Amendments to the Drawings

Please replace the attached informal drawing sheet having Figure 4 with the drawing sheet having Figure 4 originally filed. The drawing sheet with Figure 4 has been amended to correct an error as to the proper location of the output. The drawing sheet with Figure 4 has also been amended to correctly place the reference numeral "402" next to the appropriate arrow and to also clearly show the identifier "CDIFF" as a single word.

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REMARKS

This response and amendment is submitted in response to the non-final Office Action dated March 9, 2005 (hereafter "office action"), having a shortened three-month statutory period set to expire June 9, 2005. The examiner rejected pending claims 1, 2, 8, 9, and 15 to 17 for the reasons stated in the office action. The examiner also allowed the remaining claims 3 to 7, 10 to 14, 18 to 20, and 21, and applicant appreciates the examiner's allowance of these claims in the office action.

I. Correction to the Drawings

The applicant has amended the drawing sheet with Figure 4 to correct an in advertent error as to the proper location of the output. Applicant has also amended the drawing sheet with Figure 4 to correctly place the reference numeral "402" next to the appropriate arrow and to also clearly show the Identifier "CDIFF" as a single word.

II. Rejections under 35 U.S.C. Sec. 112

The examiner rejected claims 1 to 7 and 18 "under 35 U.S.C. Sec. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention". In particular, the examiner indicated that "integral" lacks proper antecedent basis in claim 1 at line 10 and claim 5 at line 3. Applicant has changed the word "integral" to the word "integrated" at both respective places as well as in claim 8, line 9 since the term "integrated output signal" is introduced earlier in each of these claims. Also, the examiner indicated that "the summer" in claim 18 at line 8 lacks proper antecedent basis. Applicant has changed

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"the summer" to "a summer" at the respective place. Thus, claims 1, 7, 8, and 18, as amended, no longer lack antecedent bases and should now overcome the examiner's indefiniteness rejections.

III. Rejections under 35 U.S.C. Sec. 102

The examiner rejected claims 1, 2, 8, 9, 15, 16, and 17 under 35 U.S.C. Sec. 102(b) as being anticipated by U.S. Patent No. 4,205,277 to Poinas (hereafter "the Poinas reference") for the reasons indicated in the office action. Contrary to the examiner's statement that all elements of claims 1, 2, 8, 9, 15, 16, and 17 are disclosed in the Poinas reference, the elements involving integrating an input signal to provide an integrated signal and then differentiating the integrated input signal to provide a proportional signal based on detected instantaneous phase differences for locking a frequency of a signal for a phase locked loop (PLL) to a reference frequency, are not, so the rejections of claims 1, 2, 8, 9, 15, 16, and 17 are unsupported by the art and should be withdrawn.

For example, the low pass filter 10, which the examiner cites as the integrator in the Poinas reference to which applicant's rejected claims allegedly read, is clearly not an integrator nor does it function as an integrator in any way. This statement of applicant is evidenced by the fact that the transfer function of the loop filter in the Poinas reference is $1/(p + c) * (a + p)/p$, or alternatively, $1/(p + c) * (1 + a/p)$. The $1/(p + c)$ part of the transfer function equation in the Poinas reference is identified as a transfer function for a low pass filter (e.g., low pass filter 10) and not for an integrator.

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Low pass filter 10 is used to remove the second harmonic caused by sine-type

comparator, which further evidences that it is being used as a low pass filter and not an

integrator (see Column 4, line 45 of the Poinas reference). The integrator in the Poinas

reference is actually integrator block 8 which shows the Laplace transform of a/p, and

integrator block 8 clearly follows differentiator block 12 as shown in Figure 1 of the

Poinas reference.

In contrast, the present invention according to claims 1, 2, 8, 9, 15, 16, and 17

provides for an integration of the input signal taking place prior to the differentiation of

the signal. For example, this order of integration and differentiation of the signal is

particularly advantageous when the phase comparator does not have the smooth

output function as described in the Poinas reference. The output of the phase

comparator often comprises noise spikes, and the present invention addresses the

removal of these spikes by the order of integration and differentiation of the signal (e.g.,

integrating prior to differentiating the signal). Furthermore, when the noise spikes are

integrated by an integrator and then placed before the differentiator in the loop filter,

then much of the noise can be removed by opening the filter path during the noisy

period. Such a result is not attainable with the teachings of the Poinas reference since

the differentiator is placed ahead of the integrator. Thus, the rejections of claims 1, 2,

8, 9, 15, 16, and 17 are unsupported by the art and should be withdrawn.

The specification, drawings, and claims as originally filed fully support the

respective amendments to the claims. Therefore, the application with pending claims 1

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to 21, as respectively amended, is now in condition for allowance, and allowance is earnestly solicited. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

No fees are believed to be due by the filing of this Response and Amendment; however, if any fees are due by the filing of the enclosed documents, including any fees incurred by an extension of term, please consider this paragraph such a Request for term, and charge any fees associated with the Request or any other fees incurred by the filing of this document to Cirrus Logic Deposit Account No. 03-2028/1437-CA.

Respectfully submitted,

Date: _June 9, 2005_   By: _____

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